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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/700,175	11/03/2003	Elfido Coss JR.	2000.088500	3603
23720	7590	05/24/2005	EXAMINER	
WILLIAMS, MORGAN & AMERSON, P.C. 10333 RICHMOND, SUITE 1100 HOUSTON, TX 77042			WELLS, NIKITA	
			ART UNIT	PAPER NUMBER
			2881	

DATE MAILED: 05/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

8m

Office Action Summary	Application No. 10/700,175	Applicant(s) COSS ET AL.	
	Examiner Nikita Wells	Art Unit 2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19, 21-32, 36 and 38-45 is/are rejected.
- 7) ☒ Claim(s) 20, 33-35 and 37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>02/13/05 & 03/07/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. Claims 1-6, 8-12, 14-19, 22-32, 36, and 39-45 are rejected under 35 U.S.C. 102(e) as being anticipated by Bode et al. (6,823,231 B1).

With respect to the above claims, Bode et al. disclose (Figs. 6 and 7; Col. 1, lines 21-31; Col. 4, lines 38-44; Col. 5, lines 1-40; and Col.9, lines 1-32) a method, comprising: performing a tuning process for an ion implant tool (510), said tuning process resulting in at least one tool parameter for said ion implant tool (510); selecting a fault detection model (320) for an ion implant process to be performed in said ion implant tool (510) based upon said at least one tool parameter resulting from said tuning process; and monitoring an ion implant process performed in said ion implant tool using said selected fault detection model (320), wherein the fault detection model (320) is selected from a plurality of pre-existing fault detection models.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7, 13, 21, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bode et al. (6,823,231 B1) in view of Markle et al. (2004/0102857 A1).

With respect to the above claims Bode et al. fail to disclose that in the tuning process at least one tool parameter is comprised of at least one of an implant dose, an implant energy level, a beam current, a twist angle, an arc current, an arc voltage, a filament current, a filament voltage, a gas flow rate, a magnet current, an extraction current, an extraction voltage, a suppression current and a suppression voltage. However, Markle et al. disclose [0036] a process control system that in the tuning process the electrical sensor (450) is capable of detecting a plurality of electrical parameters, such as the current, voltage or power provided to the beam used in processing a wafer.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize and substitute the process control system of Markle et al. into the ion implant tool of Bode et al. in order to facilitate the control of the ion implantation process in the manufacturing of semiconductor devices.

Allowable Subject Matter

5. Claims 20, 33-35, and 37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

With respect to claims 20 and 37, prior art fails to disclose or make obvious the performance of a tuning process for an ion implant tool, wherein said metrology data comprises

at least one of a dopant concentration, a depth of a doped region and a dopant concentration profile.

With respect to claims 33-35, prior art fails to disclose or make obvious the performance of a tuning process for an ion implant tool, wherein determining if said at least one parameter resulting from said tuning process is acceptable comprises determining if one tool parameter matches one of a selected group of said collection of tuning setpoint models.

Conclusion


6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Coss, Jr. et al. (6,465,263 B1) disclose a method and apparatus for implementing corrected species by monitoring state parameters in a semiconductor manufacturing process.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikita Wells whose telephone number is (571) 272-2484. The examiner can normally be reached on 8:30 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571) 272-2477. The central fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Nikita Wells". The signature is fluid and cursive, with the first name "Nikita" and last name "Wells" clearly distinguishable.

Nikita Wells, Primary Examiner,

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May 18, 2005